

# **Information Critical for Social Work Practitioners in the Decision Making Process: An Empirical Study of Implicit Knowledge using Naturalistic Decision Making Perspective.**

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## **Statement of the Research Problem**

Studies have found that formal knowledge may not play as important a role in real-life decision-making as people have previously thought when analyzing the validity and reliability of practice judgment. Professionals utilize experience as well as (if not more than) formal knowledge to make their decisions (Bright, 1996; Simon, 1997) and there is much discussion about this phenomenon (e.g., Kondrat, 1992; DeRoos, 1990). Even though it is highly debatable whether experience could be the foundation of practice decision-making and whether it constitutes the professional knowledge in social work, the fact that the decision making process of social work practitioners is influenced by practice experience is without dispute (Gibbons & Gray, 2002).

Intuition, values, and common sense are factors other than experience that could influence the judgment of practitioners (Rosen, 1994; Simon, 1997). Polanyi (1966) has labeled this type of knowledge implicit knowledge (tacit knowing in his terminology), and has used formal knowledge or explicit knowledge (articulate knowledge in his terminology) to refer to the knowledge that can be described clearly in formal and systematic language. He elucidated that there is a different style of knowledge besides formal knowledge that plays an important role in our daily life in areas such as skill performance and meaning assignment.

Rather than discussing the comprehensive content of implicit knowledge, the purpose of this study is to explore a potential method for identifying the usage of implicit knowledge in social work practice. This research will examine the effectiveness of using a Naturalistic Decision Making (NDM) (Zsombok & Klein, 1997) perspective in social work practice to explore the existence of implicit knowledge and examine how implicit knowledge affects the decision making process in social work practice.

## **Research Background and Hypotheses**

Studies of decision making can be divided into the normative model of decision making and the descriptive model of decision making. The normative model describes

how rational people make decisions in certain situations, while the descriptive model explores how people make decisions in real life.

Rational choice theory is a good demonstration of the normative model. It hypothesizes that the decision-maker is a rational person. The decision-maker will (a) transform each decision or elements within a decision into values/utilities; (b) calculate the sum value/ utilities of each decision; and (c) choose the largest sum. Although most people expect themselves to be rational, the “rational” emphasized by rational choice theory has higher standards than people thought. Rational choice theory usually hypothesize that decision makers know all information that will influence decision making, including the probability of each selection, the possible result, the expectable reward, the ability to list influential factors, having time and ability to calculate reward and payment, and having the ability to select the highest utility rationally (Plous, 1993; Frantz, 2003). Obviously, this assumption is hard to achieve in the real world.

Herbert Simon (1956) challenged this assumption and provided a good example of the descriptive model. He argued that people do not pursue maximum utility nor optimize it when making a decision, but reach a satisfying level. He named this concept satisficing, arguing that an individual in real life is not an economic person (EP) as Adam Smith proposed. People will not have sufficient information, nor will they collect and compare information as much as possible. For most people, they usually just pick up several important criteria and estimate the result. Once an option reaches a satisfying level, satisficing, they will make a choice and stop comparing other possible options.

Although Simon disagreed with the assumptions of rational choice theory, he did not suggest that people are irrational. Instead, he used bounded rationality to describe the characteristics of the decision maker. Contrasted with EP, the environment a bounded rational person (BRP) faced is intricate and information is limited. They do not have excellent computation abilities either. Facing the various possibilities and unable to verify each option, the best strategy BRP can have is to find a satisfactory solution (Frantz, 2003).

Bounded rationality proposed by Simon (1956) provides an explanation of why implicit knowledge is more suitable than explicit knowledge in social work practice. Since the available information and computation ability are very limited, people cannot make decisions in algorithmic fashion. On the contrary, people use intuition, a kind of pattern recognition, to cope with situations they face in daily life. Also, the concept of satisficing explains why people are not interested in receiving maximum utility in problem solving and decision making.

## **Methodology**

According to cognitive science, whether or not information can enter into the working memory from sensory storage and become the foundation of their decision-making is based on the scripts or schema in long term memory that directs attention distribution. This study used implicit memory as a proxy to evaluate implicit knowledge and utilized the interference method to explore the information learned implicitly. By asking them to read case records in a very short time (two to four words at

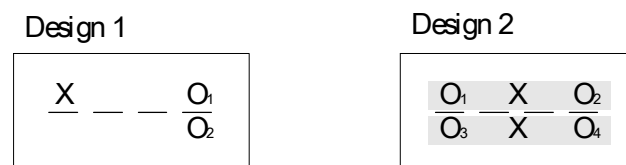
a time for 0.33 seconds), the participants do not have time to rehearse and therefore cannot learn the information explicitly. However, information can be learned implicitly which reveals the scripts and schema relevant to their decision-making.

Due to the unique feature of the topic, this study applied multiple methods of research design. It applied methods of survey design and experiment design that might be categorized as quantitative methods. It also applied methods of content analysis that might be categorized as qualitative method. Therefore, this study is better understood based on the reasoning style than the distinction of quantitative or qualitative method.

### **Deductive reasoning**

Deductive reasoning derives a set of hypotheses from Naturalistic Decision Making (NDM) theory and uses experimental design (the interference method) to examine the relationships between implicit knowledge, experience and decision making. Based on NDM theory, priming belongs to implicit memory usage, which means that individuals still have a chance to retain primed information without the function of explicit memory. If participants are able to retain the information under the interference method, it should be the contribution of implicit knowledge.

An experiment was conducted to compare the difference of implicit memory usage between inexperienced practitioners and experienced practitioners. In this study, although it was one experiment on the surface, the concept of two research designs was included. The first concept of the research design was using experience as X (intervention), a static group comparison, comparing the decision-making difference. The second concept of the research design was using interference method as X, a double one-group pretest and posttest design, comparing the decision-making difference (see Figure 1).



*Figure 1. Research Design.*

### **Inductive reasoning**

Inductive reasoning analyzes the participants' retention, diagnosis, reasoning, and clarification of the case scenarios as well as in-depth interview and utilizes content analysis to explore the nature of clinical decision making process by comparing the differences between experienced and inexperienced practitioners. This study intended to explore the kind of information that was able to pass through the filter, mostly affected by individual's schema, in the decision making process. Although it is difficult to know exactly how much information passed through the filter, part of the information can be identified through the retention of the schema that was primed by the stimulus information. After identifying the information, the second step was to solve the puzzle of how the information was composed and led the individual to a schema that can help them

understand the situation. In short, what is the relationship between retained information and the diagnosis/intervention?

The validity of the study was established through face validity and content validity as well as the application of various experimental designs. The reliability of the study was established through inter-coder correlation (with  $r = .96$  in Scenario A and with  $r = .98$  in Scenario B) in retention coding and inter-coder agreement (with Kappa = .95) in interview coding. The verification of the study was established through triangulation, member check, and peer examination. The suitability of the experiment instrument was established through fox index (with FI = 5.6 in Scenario A and FI = 4.4 in Scenario B).

## Results

Findings from deductive reasoning support the usage of implicit knowledge but do not support the assumption that experienced participants have a better understanding of the client's situation than inexperienced practitioners. This study assumed that the only difference between the inexperienced group and the experienced group is experience, and that may be oversimplifying the actual situation. One possible explanation of the results is that the inexperienced group had superior memory which undermines the advantages of the experienced group under the time-constraint situation. At the same time, findings based on different ways of estimating the understanding of client's situation suggest potential issues with how the operational definition should have been given. Estimations based mainly on retention are more related to the memory than to understanding; estimation based on both diagnosis and reasoning more related to understanding but the outcome only have slight variations that might not illustrate how well the participants understood the situation. The study results suggest further analysis of the participants' retention and reasoning in order to clarify the rationale behind their decisions and how they used information to reach that decision.

Findings from inductive reasoning suggest the structure of their memory might be more significant in the decision making process than the content of their memory. This study found that participants utilized different reasoning styles to describe their decision. The inexperienced group participants used more of the evidence-support style while the experienced group participants use more of the cause-effect style or mixed style. The reasoning style was highly related to the diagnosis preference and was likely precede the process of formulating diagnosis. According to the concept maps extracted from participants' reasoning, study found that participants could have used different pathways to reach their diagnosis. The experienced group participants tended to use concepts that take into consideration the broader environment to describe their reasoning, but the inexperienced group participants tended to use detailed information that focused on the individual client to describe their reasoning.

## Utility for Social Work Practice

The study presents a viable approach to study the use of implicit knowledge in social work practice. Implicit knowledge plays an important role in practitioner's decision making process but hardly have significant impact on the social work profession because

of difficulty in articulating and transmitting the knowledge. This study establishes a new approach that can scrutinize implicit knowledge systematically and effectively. Findings are useful for developing a Decision Support System that can potentially help inexperienced practitioners formulate useful diagnoses based on practice experiences of other social work practitioners.

Study findings also indicated that differences between experienced practitioners and inexperienced practitioners primarily pertained to their scope of perceived problems. Inexperienced practitioners tended to focus on problems at an individual level while experienced practitioners had a broader perspective of the problem, which included the context and the broader environment. Training of new practitioners should focus on how the environment and the broader context could shape the problem experienced by individual clients.

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